CLAIMS

What is claimed is:
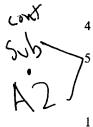
1. A method to maintain a hierarchy of application objects, the

method including:

    automatically detecting exit of a child application object;

    automatically terminating a grandchild application object

    launched by the child application object;

    attempting restart of the child application object; and

    signaling an outcome of the restart to a parent application

    object that launched the child application object.

2. The method of claim 1 including maintaining an application

hierarchy recording a hierarchical relationship between the parent, child and

grandchild application objects.

3. The method of claim 2 wherein the maintaining of the

application hierarchy includes launching the parent application object,

launching the child application object responsive to a request from the

4 parent application object, and launching the grandchild application object

5 responsive to a request from the child application object.

1   4.   The method of claim 1 wherein, if the restart of the child

2 application object is successful, then communicating a restart message to the

3 parent application object to inform the parent application object of the

4 successful restart.

1   5.   The method of claim 1 wherein, if the restart of the child

2 application object is not successful, then communicating a failure message to

3 the parent application object to inform the parent application object of the

4 failed restart.

1   6.   The method of claim 1 wherein the automatic detecting of the

2 exit of the child application object includes detecting hanging of a process of

3 the child application object.

1   7.   The method of claim 1 including automatically determining

2 whether the exit of the child application object was expected, and only

3 attempting the restart if the exit was unexpected.

1   8.   The method of claim 1 wherein, if the restart of the child

2   application object is successful, then creating a new process identifier for the

3   process of the child application object.

1   9.   A system to maintain a hierarchy of application objects, the

2   system including:

3

4   a watchdog automatically to detect exit of a child application

5   object; and

6

7   an executor automatically to terminate a grandchild

8   application object launched by the child application object, to

9   attempt restart of the child application object, and to signal an

10   outcome of the restart to a parent application object that

11   launched the child application object.

1   10.   The system of claim 9 wherein the executor is to maintain an

2   application hierarchy recording a hierarchical relationship between the

3   parent, child and grandchild application objects.

1   11.   The system of claim 10 wherein the executor is to launch the

2   parent application object, to launch the child application object responsive to

3   a request from the parent application object, and to launch the grandchild

4   application object responsive to a request from the child application object.

     12.   The system of claim 9 wherein, if the restart of the child

2   application object is successful, the executor is to communicate a restart

3   message to the parent application object.

1   13.   The system of claim 9 wherein, if the restart of the child

2   application is not successful, the executor is to communicate a failure

3   message to the parent application object.

1   14.   The system of claim 9 wherein the watchdog is to

2   automatically detect the exit of the child application object by detecting a

3   hang state for a process of the child application object.

1   15.   The system of claim 9 wherein the executor is to determine

2   whether the exit of the child application object was expected and only to

3   attempt the restart if the exit was unexpected.

1   16.   The system of claim 9 wherein the executor, if the restart of the

2   child application is successful, is to create a new process identifier for a

3   process of the child application object.

1   17.   A machine-readable medium storing a sequence of instructions

2   that, when executed by a machine, cause the machine to:

3

4   automatically detect exit of a child application object;

5

6   automatically terminate a grandchild application object

7   launched by the child application object;

8

9   attempt restart of the child application object; and

10

11   signal an outcome of the restart to a parent application object

12   that launched the child application object.

1   18.   A system to maintain a hierarchy of application objects, the

2   system including:

3

4   first means for automatically detecting exit of a child

5   application object and;

6

7   second means for automatically terminating a grandchild

8   application object launched by the child application object, for

9   attempting restart of the child application object, and for

10 signaling an outcome of the restart of the parent application

11 object that launched the child application object.